

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
10 February 2005 (10.02.2005)

PCT

(10) International Publication Number  
WO 2005/012513 A1

(51) International Patent Classification<sup>7</sup>: C12N 5/08, 15/64, C12R 1/91, A61K 48/00, A61P 25/00

(72) Inventors; and

(75) Inventors/Applicants (for US only): MORENO, Flores, María, Teresa [ES/ES]; Centro de Biología Molecular "Severo Ochoa", (CSIC-UAM), Universidad Autónoma de Madrid, Facultad de Ciencias, Campus de Cantoblanco, E-28049 Madrid (ES). MARTÍN, Beermejo, María, Jesús [ES/ES]; Centro de Biología Molecular "Severo Ochoa", (CSIC-UAM), Universidad Autónoma de Madrid, Facultad de Ciencias, Campus de Cantoblanco, E-28049 Madrid (ES). ÁVILA de Grado, Jesús [ES/ES]; Centro de Biología Molecular "Severo Ochoa", (CSIC-UAM), Universidad Autónoma de Madrid, Facultad de Ciencias, Campus de Cantoblanco, E-28049 Madrid (ES). WANDOSELL, Jurado, Francisco [ES/ES]; Centro de Biología Molecular "Severo Ochoa", (CSIC-UAM), Universidad Autónoma de Madrid, Facultad de Ciencias, Campus de Cantoblanco, E-28049 Madrid (ES). DIAZ, Nido, Javier [ES/ES]; Centro de Biología Molecular "Severo Ochoa", (CSIC-UAM), Universidad Autónoma de

(21) International Application Number: PCT/GB2004/003149

(22) International Filing Date: 19 July 2004 (19.07.2004)

(25) Filing Language: English

(26) Publication Language: English

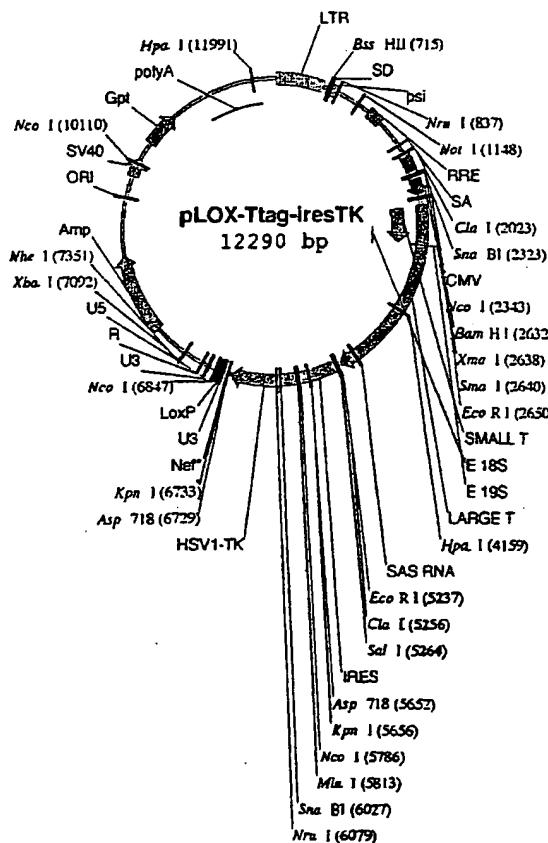
(30) Priority Data:  
0316882.0 18 July 2003 (18.07.2003) GB

(71) Applicant (for all designated States except US): CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS [ES/ES]; Calle Serrano 113, E-28006 Madrid (ES).

(71) Applicant (for SD only): RUFFLES, Graham, Keith [GB/GB]; 66-68 Hills Road, Cambridge CB2 1LA (GB).

*[Continued on next page]*

(54) Title: REVERSIBLY IMMORTALISED OLFACTORY ENSHEATHING GLIA AND THEIR USE TO PROMOTE NEURONAL REGENERATION



(57) Abstract: The present invention is based on the capacity of the Olfactory Ensheathing Glia (OEG) to foster axonal regeneration in the adult mammalian central nervous system (CNS). This specific capacity is probably due to a combination of several factors, such as the molecular composition of cellular membrane and/or the capacity to secrete some molecules; combined with the capacity to reduce glial scar and accompany new growing axon in the damaged CNS. We have developed immortalised cell lines from primary human OEGs. The cells were cultured from post-mortem human tissue from donors and immortalised using a reversible system. Some of these OEG human clonal cell lines were selected by their ability to promote axonal regeneration from adult rat retinal ganglion neurons in a similar fashion to primary OEGs. These cell lines, alone or in pharmaceutical compositions comprising these cells, may be used to repair neuronal damage in the CNS.



Madrid, Facultad de Ciencias, Campus de Cantoblanco, E-28049 Madrid (ES). **LIM, Filip** [ES/ES]; Centro de Biología Molecular "Severo Ochoa", (CSIC-UAM), Universidad Autónoma de Madrid, Facultad de Ciencias, Campus de Cantoblanco, E-28049 Madrid (ES). **PASTRANA, Izquierdo, Erika** [ES/ES]; Centro de Biología Molecular "Severo Ochoa", (CSIC-UAM), Universidad Autónoma de Madrid, Facultad de Ciencias, Campus de Cantoblanco, E-28049 Madrid (ES).

(74) Agent: **RUFFLES, Graham, Keith; Marks & Clerk, 66-68 Hills Road, Cambridge CB2 1LA (GB).**

(81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,

PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.